

What is claimed is:

1 1. A method for light signal reception, comprising the
2 steps of:

- 3 (A) transmitting a light beam to a target;
4 (B) receiving the light beam reflected from the
5 target and outputting a first received
6 signal, wherein the received signal has at
7 least one pulse;
8 (C) eliminating pulses smaller than a reference
9 voltage level in the first received signal and
10 determining whether a pulse is higher than the
11 reference voltage level in the first received
12 signal;
13 (D) outputting the pulse to a processor to execute
14 operational processes when the pulse in the
15 first received signal is higher than the
16 reference voltage level;
17 (E) repeating the steps (A) and (B) to obtain a
18 second received signal when, in the first
19 received signal, no pulse is higher than the
20 reference voltage level; and
21 (F) amplifying the second received signal and
22 outputting to the processor to execute the
23 operational processes.

1 2. The method as claimed in Claim 1, wherein the pulses
2 smaller than the reference voltage level are eliminated by
3 a comparison circuit in step (C).

1 3. The method as claimed in Claim 2, wherein the second
2 received signal is amplified by a gain circuit in step (F).

1 4. The method as claimed in Claim 3, wherein the gain
2 circuit amplifies the second received signal non-linearly.

1 5. The method as claimed in Claim 3, wherein the gain
2 circuit has a feedback voltage level which is feedback from
3 an output terminal of the gain circuit to an input terminal
4 of the gain circuit.

1 6. The method as claimed in Claim 3, further comprising
2 a step of connecting the channel selection circuit to the
3 comparison circuit or the gain circuit selectively.

1 7. The method as claimed in Claim 1, wherein, in step
2 (C), the pulses smaller than the reference voltage level are
3 eliminated by a comparison/gain device operating in a
4 comparison mode.

1 8. The method as claimed in Claim 7, wherein the second
2 received signal is amplified in a gain mode by the
3 comparison/gain device.

1 9. The method as claimed in Claim 8, wherein the
2 comparison/gain device operating in a gain mode amplifies the
3 second received signal non-linearly.

1 10. The method as claimed in Claim 8, further comprising
2 a step of switching the comparison mode or the gain mode by
3 a mode switching circuit.

1 11. A light signal receiving device, comprising:

2 a transmitter transmitting a light beam to a target;
3 a receiver receiving the light beam reflected from the
4 target and outputting a corresponding received
5 signal;
6 a comparison circuit having a reference voltage level,
7 and receiving the received signal to determine
8 whether a pulse is higher than the reference
9 voltage level, in the received signal; and
10 a gain circuit receiving the received signal from the
11 receiver to amplify and output a corresponding
12 amplified signal.

1 12. The light signal receiving device as claimed in
2 Claim 11, further comprising:

3 a processor receiving and processing the pulse or the
4 amplified signal; and
5 a channel selection circuit electrically connecting the
6 processor to the comparison circuit or to the gain
7 circuit selectively, according to a channel
8 selection signal.

1 13. The light signal receiving device as claimed in
2 Claim 11, wherein the gain circuit has a feedback voltage level
3 which is feedback from an output terminal of the gain circuit
4 to an input terminal of the gain circuit.

1 14. A light signal receiving device, comprising:
2 a transmitter transmitting a light beam to a target;
3 a receiver receiving the light beam reflected from the
4 target and outputting a corresponding received
5 signal;

6 a comparison/gain device receiving the received signal,
7 and processing the received signal in a comparison
8 mode or in a gain mode; and
9 a mode switching device for selectively switching
10 between the comparison mode and the gain mode of
11 the comparison/gain device;
12 wherein the mode switching device provides a reference
13 voltage to the comparison/gain device when the
14 comparison/gain device is switched in the
15 comparison mode by the mode switching device, and
16 the comparison/gain device determines whether a
17 pulse is higher than the reference voltage level,
18 in the received signal; and the comparison/gain
19 device produces a feedback voltage and amplifies
20 the received signal to output an amplified signal
21 when the comparison/gain device is switched in the
22 gain mode by the mode switching device.

1 15. The light signal receiving device as claimed in
2 Claim 14, further comprising a processor receiving and
3 processing the pulse or the amplified signal.